

CHAMFERED FREESTANDING NITRIDE SEMICONDUCTOR WAFER AND METHOD OF CHAMFERING NITRIDE SEMICONDUCTOR WAFER

ABSTRACT OF THE DISCLOSURE

Technology of making freestanding gallium nitride (GaN) wafers has
5 been matured at length. Gallium nitride is rigid but fragile. Chamfering of
a periphery of a GaN wafer is difficult. At present edges are chamfered by a
rotary whetstone of gross granules with weak pressure. Minimum roughness
of the chamfered edges is still about Ra 10 μ m to Ra 6 μ m. The large edge
roughness causes scratches, cracks, splits or breaks in transferring process or
10 wafer process. A wafer of the present invention is bevelled by fixing the
wafer to a chuck of a rotor, bringing an edge of the wafer into contact with an
elastic whetting material having a soft matrix and granules implanted on the
soft matrix, rotating the wafer and feeding the whetting material. Favorably,
several times of chamfering edges by changing the whetting materials of
15 smaller granules are given to the wafer. The chamfering can realize small
roughness of Ra10nm and Ra5 μ m at edges of wafers.